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FETAL WARFARIN SYNDROME-A CASE REPORT

Pediatrics

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ABSTRACT

Fetal warfarin syndrome (FWS) is a rare condition as a result of fetal exposure to maternal ingestion of warfarin during pregnancy. Warfarin sodium is a low molecular weight anticoagulant that readily crosses the placenta and may cause spontaneous abortion, stillbirth, neonatal death, and a variety of congenital malformations. The teratogenic effects may occur from exposure during either the embryonic period or the fetal period. Resulting abnormalities include low birth weight, slower growth, mental retardation, deafness, small head size, and malformed bones, cartilage, and joints. A male infant, whose mother was treated with the anticoagulant (warfarin) because of a mechanical heart valve replacement after rheumatic heart disease, presented with signs of warfarin embryopathy.

KEYWORDS

fetal warfarin syndrome, anticoagulant, embryopathy.

INTRODUCTION

Fetuses exposed to warfarin during pregnancy are at an increased risk of developing an embryopathy known as fetal warfarin syndrome or warfarin embryopathy. The most consistent anomalies are nasal hypoplasia and stippling of vertebrae or bony epiphyses. Anticoagulant therapy during pregnancy is indicated for the treatment and prophylaxis of venous thrombo-embolic disease and systemic embolism associated with valvular heart disease and/or prosthetic heart valves. (1)Pregnancy in women with mechanical heart valves is associated with significant maternal and fetal risks. None of the currently available anticoagulation options are without risk for the mother or the child, and when the outcomes of both mother and fetus are considered, no regimen is clearly superior. (2)

A woman with rheumatic heart disease underwent a mechanical valve replacement, followed by life-long anticoagulant (warfarin) prophylaxis. She had two pregnancies with two different outcomes. I present the findings of her child with Fetal warfarin syndrome

CASE REPORT

A male infant was born via cesarean section at 38 weeks of gestation to a 26-year-old, primi woman. There was a history of second degree consanguinity. The mother had suffered from rheumatic heart disease complicated with mitral valve regurgitation and stenosis and tricuspid regurgitation. She underwent mitral valve replacement at the age of 23 years . Since then she has taken warfarin sodium (coumadin) as an anticoagulation prophylaxis at an average daily dosage of 5 mg. Warfarin was given throughout her pregnancy.The infant had nasal bone hypoplasia,nasal bridge depression and ventricular septal defect (figure 1) . However, her second child was born normal with no dysmorphism.

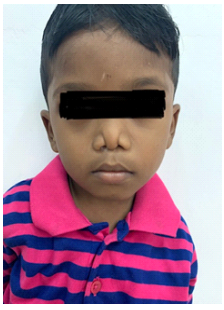

FIGURE 1
FETAL WARFARIN SYNDROME WITH NASAL HYPOPLASIA

DISCUSSION

Warfarin is a coumarin anticoagulant that has been in clinical use for over 50 years. It acts by depressing the synthesis of vitamin K-dependent clotting factors (factors II, VII, IX and X) by inhibiting vitamin K epoxide reductase. Warfarin crosses the placenta and its use during pregnancy may cause stillbirth, spontaneous abortion, neonatal death, premature delivery and a variety of congenital anomalies known as fetal warfarin syndrome (FWS), warfarin embryopathy or Di Sala syndrome. FWS has been identified in 15%–25% of fetuses exposed to warfarin during the first trimester. (1, 3)

Nasal hypoplasia and depression of the bridge of the nose may lead to the flattened and upturned appearance. A deep groove between the alae nasi and the tip of the nose, probably secondary to undergrown cartilage, is often present. Therefore nares and air passages may be small, leading to neonatal respiratory distress secondary to upper airway obstruction in about one-half of the patients.

In about half of the subjects reported, variable degrees of hypoplasia of the extremities were found, ranging from severe rhizomelia to dystrophic nails and shortened fingers.(1,4) Infants exposed to vitamin K antagonists during the second and third trimesters seem to have an increased risk of structural anomalies in the central nervous system (such as microcephaly, hydrocephalus, agenesis of corpus callosum, and Dandy-Walker malformation) .(1)Other clinical findings of FWS include scoliosis (17%), significant development retardation (31%), deafness (12%), CHD (8%), and seizure (4%) .(4)

The process of osteocalcin carboxylation in human bone formation is a vitamin K-dependent process and that circulating osteocalcin will be altered structurally by warfarin administration.(5) This finding has pathophysiological implications for the fetal warfarin embryopathy syndrome.

Treatment depends on the congenital anomalies present and their implications for the well-being of the infant. The prognosis of FWS depends on the severity of the in utero acquired defects.

CONCLUSION

Women with mechanical prosthetic heart valves should be counseled before conception about the risks of anticoagulant therapy during pregnancy. Although warfarin is the safest anticoagulation option for pregnant women, its use during pregnancy is associated with the risk of fetal warfarin syndrome (FWS).Not all women taking oral anticoagulants during the critical period have affected infants, as in this case family. Therefore it is very important to discuss with parents the available options for anticoagulation during pregnancy, with careful discussion of the maternal and fetal risks of each regimen.

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